



# ***NRC NEWS***

**U.S. NUCLEAR REGULATORY COMMISSION**

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## **THE “VERSUS”; THE “AND”**

**a talk by**

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It would be an understatement to say that the NRC and the entire nuclear industry have experienced change since my first RIC in 1997. I remember that the buzz words preoccupying everyone at the time were...

Compliance vs. Safety.

Lots of entertaining stories on these two complementary words, lots of spilled guts and blood over them. I have to admit that I probably raised a few eyebrows at that 1997 RIC when I congratulated the industry for its performance - it was the Millstone time. It would suffice to say that this Commission, the industry and stakeholders set the crooked path straight and now we have...

SAFETY and Compliance.

When the dust was settled, the people of the U.S. had won. Something close to a revolution has taken place, and most of it is focused, as it should be, on SAFETY. Safety is a word that creates excitement, fear and devotion; it is part of everyday life in this great country. Watch the frequent news coverage. The safety of this and that; and even when safety is unqualified, it strikes a chord. Is there any more important and pervasive safety issue than automobile safety? Airplane safety? Anyone for air bags in airplanes? Is that another story?

Safety is really the NRC's only business. The transformation that has taken place is to achieve real safety and, until better terms are found, to place the not important to safety in its proper place, including no longer issuing notices of violation for trivial findings. Some would think that the transformation involves only risk-informed regulation. I believe this transformation is broader and fundamental to the mission of the NRC: focus attention and resources on what is more important to safety. Demand safety in uncompromising ways, let industry manage it, and have an objective

accountability system. I should point out that risk-informed regulation not only should be used as a decision-making tool, but also has a public information role: it should serve to communicate and clarify the safety relevance of events and regulatory decisions in terms of public health and safety. Here, the end is clearly a lot more important than the means.

I am proud to serve this country and this agency, within the framework of the collegiality of the Commission, during a period of change and major achievement, when safety is placed first and foremost, in a manner consistent with the law, and with the principles of fairness and equity essential to a democratic society.

And given that safety is our business, if we were equipped with a “safety meter” and an acceptable safety range, life would be sweet. But we are not, and therefore, decisions have been and are being made that conservatively comply with the overarching goal of achieving...

#### Adequate Protection of Public Health and Safety.

This overriding consideration is paired with the mandate to...

#### License and Regulate

activities and materials, as specified by the Atomic Energy Act.

Day in and day out, in fulfilling its role the NRC tries to develop ways to define, infer and verify safety. The licensees interpret our rules and regulations, infer safety from their exercise of licensed activities, and verify consistency between their experience and our regulation. The NRC’s and licensees’ activities are conducted within the broad context of protection of public health and safety but bounded by the more manageable goal of...

#### Assurance of Adequate Protection of Public Health and Safety.

Obviously, the “safety meter” needs to be a digital multimeter. Adequate protection, here or elsewhere, should be established in no uncertain terms by the representatives of the people. It is our job to then bound it by rules assuring adequate protection with a strong correlation to our licensing and regulatory activities, and to licensees’ management of their facilities.

For all practical purposes, the acceptable range for assurance has included safety margins, “just to be safe”.

Assurance should not be “mushy”. It should have a backbone, it should be conservative, but not unduly restrictive, it should be readable and communicable. I believe assurance is amenable to statistical treatment while continuing to be appropriately subjected to deterministic measures. Technology and regulation are not stagnant; they should improve with time. Therefore, assurance should be based on increasingly quantifiable evidence of the safety status. The safety status has no definitive quantitative threshold that would trigger regulatory action. Assurance should be unshaken by events and stand up to public scrutiny. It should be enforceable. It should be a vehicle for progress, not an impediment to betterment. And it should be balanced, and provide...

## Reasonable Assurance of Adequate Protection of Public Health and Safety.

“Reasonable” prevents the skewing of assurance; it is a driver for the achievable and is a deterrent to extremism in either direction. “Reasonable” brings practice, experience and expert judgment to more clearly bound the assurance of adequate protection.

The call is strong out there to codify what is adequate protection. Like I said, that task belongs to the representatives of the people. We have been handling the “assurance” and the “reasonable assurance” well and striving for better without hindering the good. More definition is being provided every day and I believe quantification is increasing. It is true that no one can invoke an “adequate protection” number; in fact, probably never will. The performance and reliability of plant systems, structures, components, and personnel are subject to stochastic fluctuations, indeed to random variations. And so is the marketplace. However, the licensees and the NRC can and should control the quality of all technical processes, both deterministic and probabilistic.

Yet I know we have most of the pieces of the puzzle. The best news is that you are going to find the answer as a natural product of the on-going transformation, probably driven by today’s pressing question:

Safety vs. Cost Competitiveness.

We already learned that the versus did not help safety before. The real issue, since I believe they are both realities, is then...

Safety and Cost Competitiveness.

This is an old issue made new by today’s environment of de-regulation, of consolidation, increasing productivity and cost cutting. Which U.S. industry sector was I talking about? Is there any industry to which this does not apply?

Can the nuclear industry make it work across the board? Surely, the mere mention of cost competitiveness raises the safety awareness of the NRC. Does it equally raise the safety awareness of the entire industry? Has the indispensability of safety worked its way to every corner affecting safety?

I believe the top nuclear industry performers are providing clear evidence that real safety as a priority is not only compatible with cost competitiveness, but is a good driver for it. If this compatibility is strengthened, it might even be possible to find cost competitiveness driving safety in specific areas. Clearly, there should be no trade-off of real safety. There are many pathways for cost competitiveness yet they should all have one final filter: safety. The challenge is to optimize the positive feedback between safety and cost competitiveness.

There is much work yet to be done for the NRC, for the industry and stakeholders to arrive at a satisfactory mapping of assurance of adequate protection. Mapping, as in a composition reflecting areas, boundaries, limits, values. Mapping as in blobs.

Want more? Tune in next year.

I would be remiss if I do not tackle one of my favorite subjects and its relationship to reasonable assurance of adequate protection.

### The Big “Zero Factor”

Last year I talked about the zero factor in 50.59 and mentioned that its Medusa-type head shows in many places, especially when risks are mentioned!

I believe there is a Zero Factor that needs to be discussed, eliminated and subsumed into reasonable assurance.

### The “Zero” Radioactive Risk The “Zero” Radioactive Release The “Zero” Radioactive Dose

The influence of the “zero factor” needs to be addressed when discharging the NRC’s radiological protection mission. After all, this is NRC’s most important function, where everything starts and ends.

Let me talk about the NRC and zero risk. It is clear that the courts, interpreting the law, have ruled “the level of adequate protection, need not, and almost certainly will not, be the level of ‘zero risk’”

Furthermore,  
“the courts have long accepted the Commission’s definition of its statutory mandate to ‘provide adequate protection of public health and safety’ as requiring not a risk-free environment, but a ‘reasonable assurance’...”

Risk as in radioactive risk. Radiation is radiation yet radioactive risks are often treated quite differently depending on the source. The risks from radiation need to be scrutinized and given equal treatment under the law. If different treatment of the same radiation risk were of benefit to this country, I would be its strongest advocate. But it is not beneficial and I disapprove of the arbitrary imposition of a zero factor to narrowly selected radiological risks with no importance to public health and safety. I oppose it not only because it is contrary to the law governing the NRC, but because it hampers debate and gets in the way of good regulation.

In 1997, three conferences ago, I congratulated the nuclear industry for the safety record of this decade, a safety performance that keeps improving.

Today, I want to congratulate the industry again for its safety record and for industry and stakeholder’s contribution to better regulation. I also want to congratulate the staff for heeding the call for change, going beyond the call for duty and forging good regulation. Everyone here is contributing to the quality of life of the American people.